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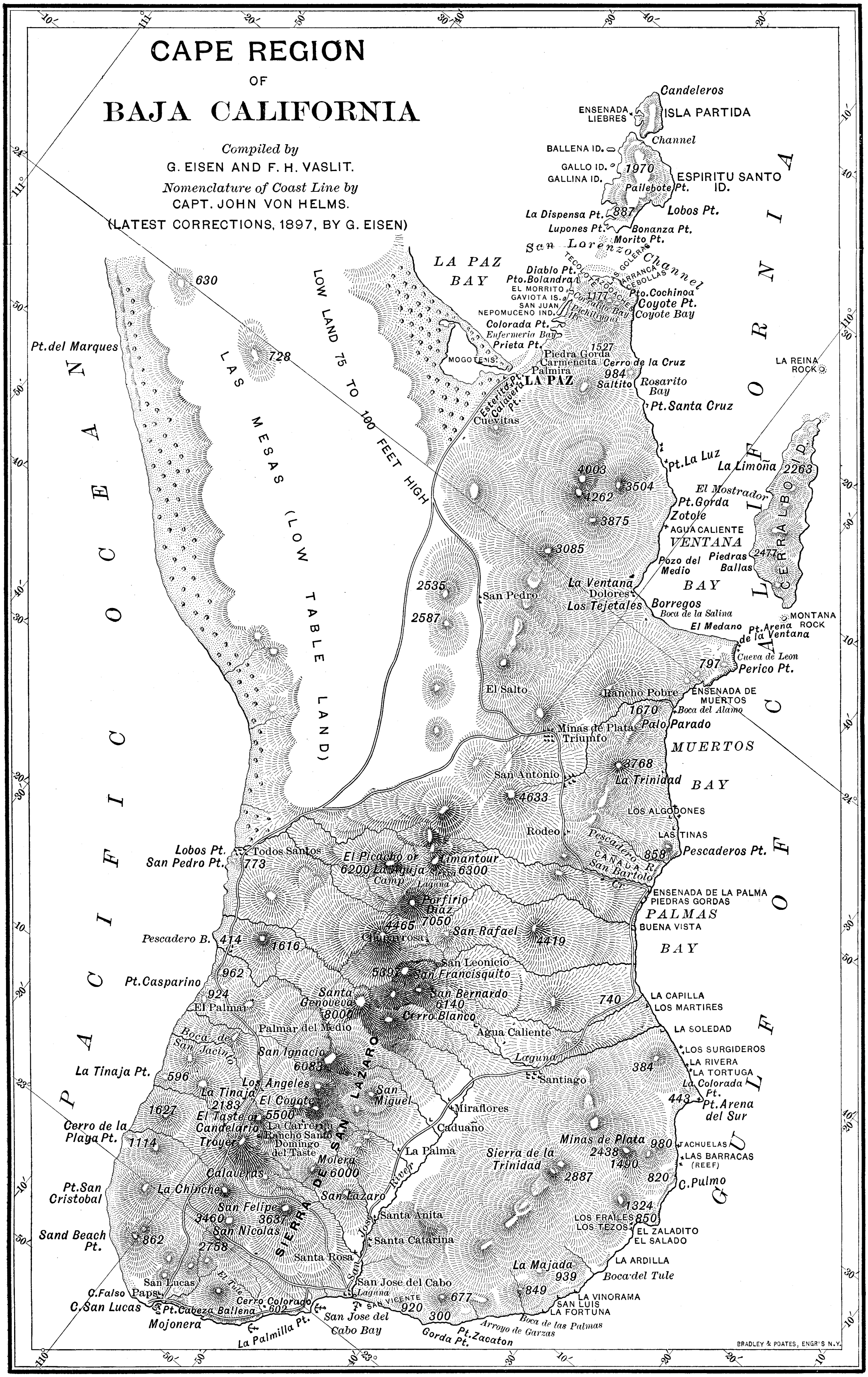

CAPE REGION
OF
BAJA CALIFORNIA

Compiled by
G. EISEN AND F. H. VASLIT.
Nomenclature of Coast Line by
CAPT. JOHN VON HELMS.
(LATEST CORRECTIONS, 1897, BY G. EISEN)

EXPLORATIONS IN THE CAPE REGION OF BAJA CALIFORNIA

MADE UNDER THE AUSPICES OF THE CALIFORNIA ACADEMY OF SCIENCES.

BY

GUSTAV EISEN.

Baja California, until half a dozen years ago, possessed the doubtful honour to be almost the least known territory in the world, with the exception of the polar regions and some few deserts and inland places, difficult and dangerous of access. But in Baja California we have a territory of vast extent at our very doors, easy of being reached in a dozen different ways, touched at by steamers every week, a country offering no dangers to the explorer, and with one of the most salubrious climates in the world. Still this country has been until very lately not only almost unknown, but very much misunderstood. No one seemed to know that the southern part of the peninsula of Baja California, the country from La Paz southwards, possessed entirely different features from those of the country northward. And, indeed, when I first arrived there it was a surprise to see that instead of landing on a barren waste, I had before me a tropical country, with luxuriant vegetation, and with many other attractions, at variance with what I had surmised from the few and scanty descriptions that had been published. The great distinction between the northern and southern parts of Baja California cannot be too much insisted on, and rather than class them as one, we would be more justified in saying that there is no pronounced similarity whatever between them.

This southern part, from La Paz to Cabo San Lucas, is now appropriately known as the Cape Region. It differs from the northern part in having tropical rains during the summer months, at the same time as the tropical mainland of Mexico. It receives its rain from the "lows" coming in from the Gulf of Mexico, while the northern part of Baja California receives its rains during the winter months, and from a different source—the north—Pacific Ocean. Northern Baja California is thus a mere continuation of the southern part of Upper California, sharing in its peculiarities of climate and geology. The Cape Region, again, is, so to say, the remains of a formerly existing tropical peninsula extending southward along the Mexican coast, taking in the Tres Marias and other islands. The northern part of Baja California, from La Paz northward, consists principally of stratified rocks of various geological ages, while the mountain backbone of the Cape Region consists of granite and its kindred rocks.

The fauna and flora of the two divisions are also different, those of the Cape Region being tropical or, at least, largely tropical, while those of the northern part resemble California and Sonora.

I have visited the Cape Region four different times for the purpose of exploration and collecting zoölogical specimens; of these expeditions three were made under the auspices of the California Academy of Sciences. The last one of these expeditions was, perhaps, the most fruitful one, the time and climate being especially favorable. During my first visit I had time only to explore the country around Ensenada, Magdalena and San José del Cabo. The three last expeditions concerned principally the Cape Region, which I have thus traversed in every possible direction. But as these details can have but little interest to the general reader, I will append a short summary of the various routes taken, at the end of this paper. The expeditions of the Academy began in 1888 and ended in 1894, when the funds of the Academy became so low as to make any more explorations impossible, at least for the near future. We will now review the principal characteristics and features of the Cape Region.

Temperature and Climate.

The temperature is a moderate one, as might be expected from the situation of the peninsula, between the Pacific Ocean and the Gulf of California. All along the lowlands up to 800 feet or thereabouts we meet at no time of the year with heavy frosts. In the valley of San José del Cabo the ever frost-free belt extends as far north as La Palma, but as the country steadily, though slowly, rises toward the upper end of the valley, we find that at Caduaño and Miraflores light frosts may occur during especially cold winters, frosts heavy enough to kill some of the tender native tropical plants to the root. The beautiful "palo de arco" (*Tecoma Stans*) is the first shrub to suffer on such occasions. Frosts are, however, rare and occur only once in three to five years. But south of La Palma no frosts have ever been recorded, and all along the coast-belt frosts are similarly unknown.

The high mountains, which reach 8,000 feet, are always subjected to heavy frosts as late as March and April, and both at El Taste and Sierra Laguna ice is frequently formed on the surface of the water late in the spring. But from April to December no frosts occur even on the high peaks. Snow is never formed, no rain falling during the cold months. The air is moderately dry, much more so than in Mazatlan or in Sonora. As a consequence of this favorable atmospheric condition tender tropical plants, such as coffee, pineapples, cocoanuts, etc., thrive anywhere along the coast and in the San José valley as far north as La Palma, wherever irrigation can be had. The nights are always tempered by breezes from the Pacific, and even the days feel seldom exceedingly hot, as they do, for instance, in Mazatlan or in the interior valleys of California and other States of North America. From October to June the days are pleasant and very enjoyable. The warm months are July to September, but even at that time the temperature seldom, if ever, rises above 90, and generally is much less. During September we found at San José that the highest average was 88 Fahr. in the shade, during the hottest part of the day, while the night temperature averaged 82 Fahr. for several weeks. This protracted spell of warm weather was considered one of unusual heat, and the highest and longest for ten years. Surrounded as is the Cape Region by the waters of the Pacific Ocean and the Gulf, it enjoys an exceptionally clear atmosphere. The sky is, except during rainstorms, marvellously clear and brilliant. We never observed the yellowish, hazy dust which is so common in all inland countries, where summer rains are absent. Even from the low levels, whenever the ocean is not hidden, its horizon always presented itself as a sharp, well-defined line; and one of the most beautiful sights was to watch the advent of distant thunder clouds rising above the horizon, and standing out as clearly and sharply as if they had been painted. In the various sierras of the Cape Region this clearness and brilliancy of the air are even more intense, and I could not help thinking, that if ever a superior place for an astronomical observatory is desired, the sierras of the Cape Region, especially that of El Taste, is pre-eminently one that I believe cannot be equalled anywhere else in the world, not even in Peru. The nearness of the ocean prevents any dust from rising in the vicinity, while the distance of the mainland is such that none can be carried over from there. Fogs which are so common higher north and not unknown in Southern California are never felt or seen in the Cape Region.

RAINFALL.

The rainfall in the Cape Region is much more abundant than in any other part of Baja California. Located within and on the border of the tropics the region receives its rain from the south, through storms originating in the Gulf of Mexico. The rainfall in the Cape Region commences later than on the mainland opposite, and is also considerably less. There is rain in July and August, and the showers last till October and November, seldom later. In January there may be another period of rain, generally of short duration and quite scanty as to quantity, though sometimes sufficient to start the grass. This rain is the tail-end, so to say, of the Alaska cyclones, which furnish the upper Pacific coast as far as Magdalena Bay with rain, during the winter time. Of the summer months September is the wettest. Rain sometimes falls then for several days in succession in the lowlands, while in the sierras the thunder may be heard for weeks and be accompanied by almost daily, continuous, heavy showers of local extent. In the various parts of the Cape Region the quantity of the rainfall is most unequal. It increases in quantity from north to south, and from the lowlands to the sierras. At La Paz in the north there is seldom rain of any consequence, perhaps a shower or two in a year, though sometimes a year goes by without even a drop of rain. At San José del Cabo we find the rainfall heavier than at any other place in the lowlands, probably reaching 15 inches, while the higher sierra enjoys even a greater quantity, which in good years may reach 20 to 30 inches. As this rain falls all at a time, when the vegetation is most active, it is utilized at once with comparatively little waste, and during the rainy season the valley of the San José del Cabo as well as the higher hills presents an unsurpassed view of luxuriant vegetation and flowers.

RIVERS AND CREEKS.

As might be expected from the increased rainfall in the Cape Region, we also meet here with more springs and creeks than in any other part of the peninsula of Baja California. In the sierra the water is found flowing in almost every gulch the whole year round, and during the rainy season every little creek is at times a torrent. But, strange to say, there are few real springs to be found in the sierra. The watering places for stock during the dry season are invariably found in so-called water-holes in the bottom of dry creeks or ravines; in other words, it is mere seepage-water. Real springs, such as we are accustomed to find in countries where the rainfall is stored up in the soil for summer use, springs gushing out of the soil or from under a rock on the hillside, are almost entirely absent, or, at least, are so scarce that they may be counted on the fingers of one hand. I have myself only seen three such springs during all my travels in the Cape Region. One of these springs is so remarkable that it deserves especial mention. It is situated in the cañon of San Bartolo, between San José del Cabo and La Paz. It is the finest spring I have seen or heard of. It courses out from one or two holes in an alluvial and glacial mesa, and gives about five cubic feet of water per second. It is of exceptional purity and coolness, retaining its temperature with almost no variation all through the seasons. This spring empties into an otherwise (during the winter season) dry gulch, known as San Bartolo Cañon. This gulch at my visit was dry immediately above the spring, but below it for four miles or more the spring suffices to fill the creek-bed with water, appearing like a small, real stream, besides furnishing irrigation water for several hundred acres on the terraced and very steep slopes of the cañon. Everywhere there are seen irrigated fields of luxuriant sugar-cane, orange groves, bananas and other tropical fruit trees, making this cañon the most beautiful spot on the peninsula of Baja California, a great contrast to the surrounding hills, which are barren and inhospitable, or covered with stunted "chaparral." Another but very much smaller spring is found at La Palma, near San José del Cabo, while there is a fine sulphur spring at Agua Caliente, north of Miraflores.

San José River is the largest water-course on the peninsula. It is some forty miles long, or, if we count in its main tributary, the Miraflores River, it probably reaches fifty miles in length. It receives during the rainy season a number of tributaries from the sierra on the west side of the San José Valley. During the rainy season most of these tributaries are real torrents, sweeping everything before them, while in the winter time they may dwindle down to a mere seeping underflow, here and there rising to the surface. These combined underflows are sufficient to make quite a showing at the mouth of the river, where in the month of March I found at one time 500 cubic feet of water running to waste into the ocean. In very dry seasons this waste is, of course, less, while in the time of the rains the river swells enormously, and for days may be a mile wide and impassable for weeks. The water is everywhere taken out for irrigation in the most primitive manner possible, and probably four-fifths of the supply is wasted in some way or other. From the west the San José River receives the following tributaries: Santa Rosa, San

Lázaro, San Miguel, San Ignacio (at La Palma), Caduaño, Miraflores and San Bernard.

The only other permanent river in the Cape Region is the one at Todos Santos. It heads in the Sierra Laguna, and from there runs to the Pacific Ocean. It also is used for irrigation, but most of the water is wasted. The many creeks on the Pacific side, which in the summer are impassable torrents, dry up quickly after the rains, and during the dry seasons seldom reach the ocean. The Pacific side of the sierra is moister than the eastern slope, but the mountains being steeper, the water runs off more quickly and the creeks are less permanent.

The quality of the water in the Cape Region is remarkably pure and crystalline; it is also of fine taste and healthy. Besides these creeks there are found all through the region hundreds, if not thousands, of dry river beds, broad and sandy, which, even during the rainy season, very rarely carry any water, showing that at a former period the rainfall must have been much greater than now.

THE SIERRA.

The Sierra, or high mountain backbone of the Cape Region, is by far the most interesting part of the whole peninsula, in which it forms, so to speak, an island, towering above every other landmark and imparting a decided character to the country. This sierra may be said to be slowly rising from the vicinity of Cabo San Lucas towards the north, culminating in the peaks surrounding Sierra Laguna. From this point it descends less slowly northward. Both the eastern and western slopes are abrupt and difficult, or at least laborious, to ascend. The western side is the steeper, and the highest peaks are situated nearer to this side than to the eastern one. In this sierra there is no main crest or ridge, but rather a succession of high peaks zigzagging along from north to south, and separated by passes running east and west. This feature makes it impossible to travel any considerable distance north or south, all the trails leading east and west. Thus, if we have first reached El Taste in the south and wish to go to the central and northern peaks of the sierra, it will be absolutely necessary first to descend to the plains and then again ascend the mountains at some other point. The many ridges sloping down to the sea or to the San José Valley are all very precipitous and very narrow. Many are so narrow, indeed, that if one should slip he would be likely to fall down either side, as if from the sharp ridge of a roof. This sierra is imperfectly known. Few if any of the educated people of the country have ever visited the higher mountains or are at all interested in doing so. In Mexico there is no taste for athletic exercise, and no sierra or mountain clubs, no desire to enjoy the sublime scenery of the high mountains; all this is left to the poor cowboy, the arriero or mule-driver. There were only two records of ascents of the higher peaks previous to ours; one was made by an English sailor, the other by an American newspaper man; the natives are satisfied to look at the mountains from below or to engage in deer-hunts in the more accessible places.

Only those peaks which can be readily seen from the plains below have received names, and of them only those which serve as prominent landmarks. Of the interior peaks, most are unknown, and we were probably the first to ascend any of them. Each one of the many ridges which slope down from the sierra east and west or north and south is designated as a "sierra" proper, and the most prominent of these have names. I will enumerate the principal ones. South of El Taste and Cerro de la Calavera we have three distinct groups of sierras, all more or less separated: El Chinche, San Felipe and San Nicolas. If again we proceed northward, we pass the following: Cerro la Calavera, with Mount Troyer at the upper or western end; La Ballena, culminating in Mts. Molera, Candelario or El Taste. Then comes San Lázaro, with the highest peak on the eastern side facing the Valley of San José. Then El Coyote, Los Angeles, Huerigo, Cajoncito, La Comunidad, San Miguel, San Ignacio, Cerro Blanco and San Pablo, with Santa Genoveva at the western end. This latter is the highest peak of the sierra, and probably reaches 8,000 feet, it having never been ascended. Then following along we have San Bernardino, Sierra Laguna, which latter is a cluster of peaks, comprising La Aguja or Picacho, Porfirio Diaz, Mt. Limantour, San Rafael, etc., while of smaller ridges there are El Molero, Sirvuelar, La Torre, San Leonicio, all situated between San Bernard and Sierra Laguna proper. With the right of every explorer, we have named some of the mountain peaks ascended by us, and which previously had no name. Thus in the El Taste region we named Mt. Troyer and Mt. Molera after members of the California Academy of Sciences. The former is about 5,200, the latter 6,200 feet. In the Sierra Laguna region we ascended and named Mt. Porfirio Diaz and Mt. Limantour. The former is about 7,000 feet, the latter about 6,000 feet in height; both must be counted among the higher peaks of the sierra, though neither of them is as abrupt and bare as some others. The ascent and descent of the Sierra Laguna region is one of the most arduous in the sierra, especially when pack-mules must be brought along. At La Laguna there are fine large meadows, much more spacious than those at El Taste, but less fertile and more frequently dry.

GEOLOGICAL FEATURES.

No special attention was given to the geology of the Cape Region, but the following observations made while travelling may be not without interest as being the first published about the southmost part of the peninsula. The main sierra from El Chinche in the south to Sierra Laguna, and to some distance beyond, consists of a single upheaval of granite and syenite. Its surface shows in many places signs of the glacial period, especially along the western side of the Valley of San José del Cabo, where we meet with enormous moraines, all more or less parallel, running from west to east. Such moraines are both numerous and well defined, the largest being found between Miraflores and San Bartolo, at the latter place known as the Quebradas, being several hundred feet high. The coast mountains east of the San José River appear to consist chiefly of volcanic rocks, here and there overlaid by stratified and other crystalline limestone, of white color and of great hardness. This limestone region is characterized by table mountains which in places have been eroded and have assumed the shape of clustered, sharp-pointed pyramids. The rest of the Cape Region appears to be exclusively volcanic, consisting of stratified volcanic ashes of red color. There is, I think, good evidence that the whole of this land is in a state of upheaval, and probably has been so since the glacial period. At Magdalena Bay, just below Punta San Lázaro, I found successive beaches of marine shells, while at Cape San Lucas the sharp-pointed pinnacles of the cape indicate that extensive land erosion could not have taken place. At the end of the glacial age the sierra of the Cape Region probably consisted of an island with moraines ten to fifteen miles long sloping to the sea. This island was separated from the northern part of Baja California by a channel passing east and west, about where now are situated La Paz and the country north of Todos Santos. The whole country east of the Valley of San José rose later, and even now it is much lower than the main granite sierra.

BOTANICAL AND ZOÖLOGICAL FEATURES.

Large volumes might and will be written about the animal and vegetable life of the Cape Region, so different from that of the country to the north. Situated within the belt of the tropics, it contains, as might be expected, a very large percentage of tropical forms, both of plants and of animals. The whole aspect of the country is tropical, especially in the Valley of San José, where we meet with cocoa-palms, mangoes, pine-apples, aguacates (*Persea gratissima*), sugar-cane and numerous other tropical fruits introduced from the south. The north is represented by grapevines, apples, peaches and figs, as well as by some other temperate fruits. Among wild and native fruits the pitahaya or cactus fruit (*Cereus Turberi*) takes a prominent place, being very abundant as well as most delicious to the palate. A tropical plum, the so-called ciruela (*Cryptocarpa procera*), grows wild along the sandy shores as well as in the mountains. It is worthy of cultivation, being related to the well-known pistachio. A wild persimmon or "guayparin" is found in the mountains; it also is deserving of cultivation, being superior to our northern and Japanese persimmons in taste, though not in color. The whole of the southern part of the Cape Region, including the mountains, is covered with a dense vegetation consisting of acacias, wild fig-trees, palms and hundreds of other species, a mixture of tropical and temperate plants. In the high mountains we find oaks and pines in abundance, but of poor quality for timber. The Cape Region is certainly a most favored land, suitable for agriculture with irrigation, and capable of a very high state of cultivation. The Indian tribes which a hundred years ago roamed over the peninsula have all disappeared, and there is little or no trace of any admixture of their blood with the present population, which in many respects is superior to that of the main land of Mexico.

EXPEDITIONS OF THE ACADEMY TO THE CAPE REGION, AND THEIR ROUTES.

1. October, 1890. W. E. Bryant. San José del Cabo, Agua Caliente, Sierra, Triumfo, La Paz.

2. March to May, 1892. W. E. Bryant and Gustav Eisen. San José del Cabo, Miraflores, Agua Caliente, Santiago, Gulf Shore, Sierra Laguna, San Francisquito, La Paz, Espiritu Santo Island, Guaymas, Sonora, etc.

3. Sept. and October, 1893. Gustav Eisen. San José del Cabo, Sierra El Taste, Pescadero, Todos Santos, Cabo San Lucas, Miraflores, San Francisquito, Chuparrosa, Sierra Laguna, Todos Santos, Pescadero, etc.

4. Gustav Eisen, Frank H. Vaslit, October and November, 1894. San José del Cabo, Miraflores, Santa Anita, La Palma, Sierra San

Lázaro, El Taste, Piedra Corral, La Paz, Santiago, San Bartólo, Triumfo.

During this last expedition over forty thousand insects were collected, in addition to much other zoölogical material, the results being now in course of publication by the California Academy of Sciences in its proceedings. Mr. T. S. Brandegee, who has published several papers on the botany of the Cape Region, took part in several of the expeditions.